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**A STUDY OF THE ECONOMIC FACTORS OF
THE TENNESSEE VALLEY AUTHORITY**

By

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Honors Program Research

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OUTLINE

A STUDY OF THE ECONOMIC FACTORS OF THE TENNESSEE VALLEY AUTHORITY

- I. The Tennessee Valley Authority is a story about a river and how utilization of this river brought changes to the Tennessee Valley.
 - A.
 - A. Planning, intelligence, and capital were factors that brought a change.
 - B. The Tennessee River begins in eastern Tennessee and has a basin area of 40,910 square miles.
 - C. The area was characterized by slow progress and in many instances backward living conditions.
 - D. Resources were poorly developed.
- II. The Tennessee Valley Authority Act was passed in 1933 establishing TVA as a corporate agency.
 - A. The Board of Directors is responsible for policy.
 - B. The General Manager is chief executive.
 - 1. The Management Service Council includes departments such as Finance and Legal.
 - 2. The Water Control in the River Department plans, designs, and constructs necessary structures.
 - 3. The Water Control on the Land Department is in charge of forestry activities.
 - 4. The Regional Planning Council is concerned with the adjustment of the social and economic life of the Valley to changed conditions.
 - 5. The Management of Power Division is concerned with electrical distribution and transmission systems.

III. The TVA developed important working relationships with the people.

- A. Responsibility for local actions was placed upon the local people.
- B. The test-demonstration farm was widely used.
- C. A county agent reports on land yield.

IV. The whole area was developed greatly, transforming the way of life of the people.

- A. The income of families underwent rapid change.
- B. Industry and business flourished.
- C. The forest products industry was developed through local effort in cooperation with TVA.
- D. Flood control systems were effective in preventing damage to the Valley.
- E. Better sanitation and health control methods were developed.
- F. TVA became a wholesaler in the power system.
 - 1. Local communities were given an opportunity to decide if they would use TVA power.
 - 2. The TVA "yardstick" was developed.
- G. Recreation facilities were developed primarily by state and local agencies.

V. There can be no real assessment of TVA and its effect on the valley.

- A. Many problems were solved, but not all have been.
- B. The region is still undergoing a great transition.

A STUDY OF THE ECONOMIC FACTORS OF
THE TENNESSEE VALLEY AUTHORITY

The story of the Tennessee Valley Authority is a story about a great American river basin; it is a story about water and soils and forests on mountain slopes; it is a story about people who grow cotton and corn, milk dairy cows, cut timber, and work as clerks in country stores; it is a story of local government, community institutions, and a thousand facets of private economic enterprise all working together in developing and using the natural resources of a region; it is a story about the application of large-scale planning and coordination in the solution of problems; it is a story of how the potential of a mighty river was harnessed and put to work to make life better for the people who live in its basin. The unifying factor of the entire operation is the application of knowledge and skill in resource use. The depth of soil on the ridges and valleys was not changed by TVA; no minerals were added to the deposits on the surface of the land and beneath it; no changes were made in the total amount of water in the region; and no new sections of forest land appeared with the coming of TVA. All the natural resources that were in the region after TVA was created were there before. The new factors that were added were planning,

intelligence, and the capital needed to make intelligence effective in resource use.¹

The Tennessee River has its beginnings where the Holston and French Broad Rivers join near Knoxville in eastern Tennessee. To the northwest the watershed includes the ridges of Southwestern Virginia, from the west comes the drainage from the Cumberland Plateau, streams from the east bring water from the ranges of the Great Smoky Mountains that receive the country's second highest rainfall, and other tributaries bring to the Tennessee Valley the runoff from western North Carolina and northern Georgia.

The area of the Tennessee basin is 40,910 square miles lying within parts of seven states: Virginia, North Carolina, Tennessee, Georgia, Alabama, Mississippi, and Kentucky.

About three million people lived in this area in the early 1930's, over half of them in rural communities and neighborhoods. Industry was concentrated in the eastern section of the valley. The per-capita income in 1929, the year of peak predepression prosperity, was \$117 a year, 43 percent of the national average. Cities were modern, but in rural areas the people lived and worked under conditions which for the twentieth century were strangely close to those of frontier days. Electricity, telephones,

¹ American Association of School Administrators, Conservation--in the People's Hands (Washington D.C. 1964), p. 190.

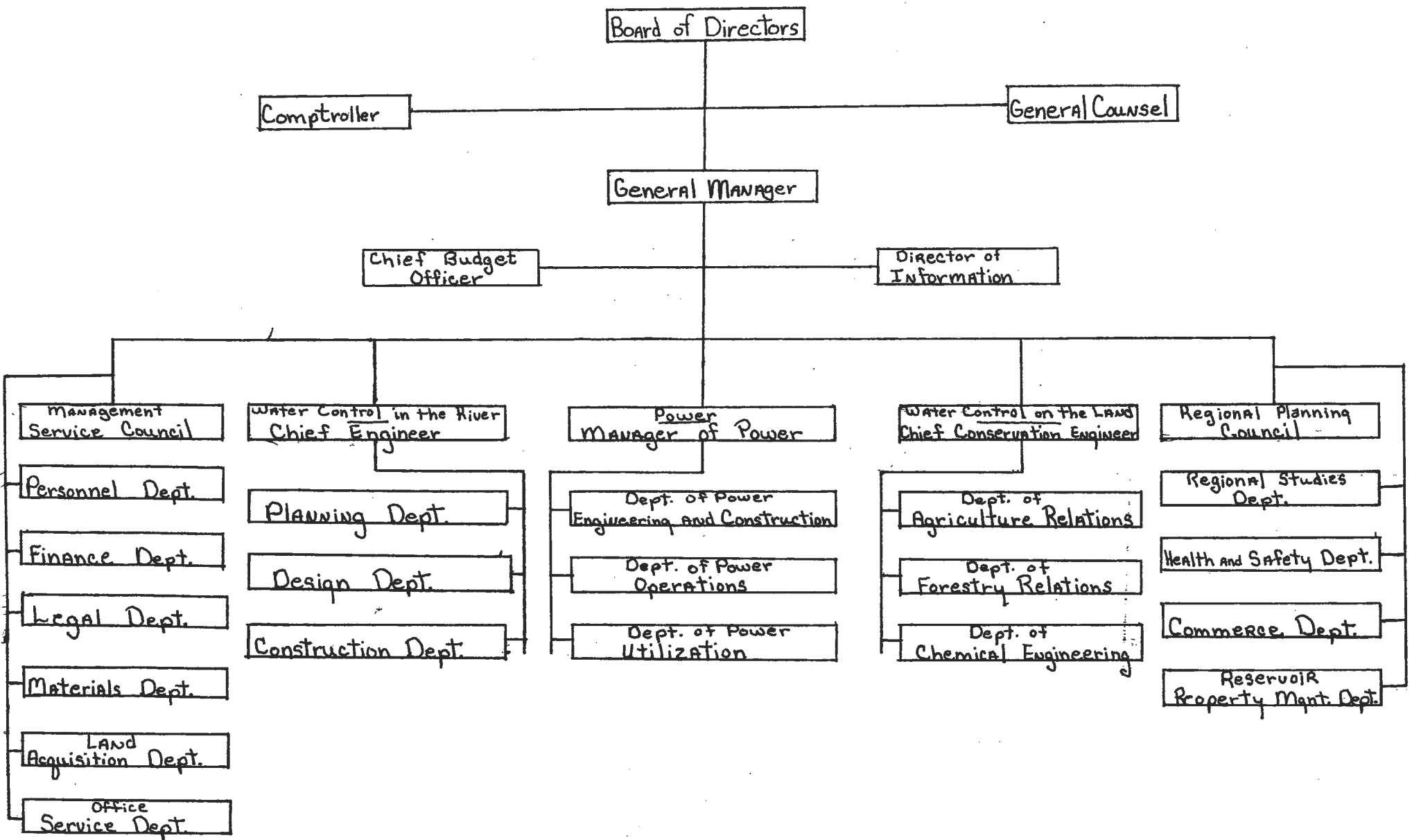
and running water with modern sanitation facilities were almost nonexistent outside the towns. Roads were poor and schools were run down. Farming was done for the most part by mule power and manpower, rarely with tractors or other laborsaving equipment.²

Resources were little used or badly used. The Tennessee River rose frequently in damaging winter floods, then dwindled to a small, almost useless flow during the summer. Commercial navigation, except for short hauls of sand and gravel, had been discontinued. The two dams stretched across the main stream to generate electric power had but little flood control capacity.

In 1933, the TVA Act was passed by the Congress and signed by the President. The Act established TVA as a corporate agency of the federal government, independent of any department and reporting directly to the President and Congress. The agency was headed by a board of three directors, appointed by the President and confirmed by the Senate, but with headquarters in the region rather than in Washington. Its assignment was to develop the resources of the region in cooperation with the people and their institutions. From this mandate came the basic TVA policy of "integrated resource development"--the development of all resources in their relationship to each other.

²Conservation--in the People's Hands, p. 191.

³Conservation--in the People's Hands, p. 193.



The board is responsible for policy and major decisions. The Comptroller and General Counsel are directly responsible to the Board; the former is head of the Finance Department and the latter is Secretary of the Corporation and head of the Legal Department.

The General Manager is chief executive of the Authority, subject to the policies and decisions of the Board. He prepares and recommends a budget to the Board, prepares Board agenda, and is the link between the Board and staff. The Chief Budget Officer is assistant to the General Manager and is responsible for the execution of budget policies and decisions. The Director of Information is assistant to the General Manager and is responsible for the distribution of information for public use.

Under the General Manager are five divisions, each one comprising several departments. Three of the divisions have chiefs, while the other two include related departments, whose work is co-ordinated by councils which advise and make recommendations to the General Manager.

The departments grouped under "Management" have functions similar to corresponding civil service and large corporation departments. The departments grouped under "Regional Planning" have a variety of long and short-range planning functions. They are chiefly concerned with the adjustment of the social and economic life of the Valley to the changed conditions brought about by the activities of the three "development" divisions. They have to relate the

work of the Authority with that of many Federal, state, local government, and other public agencies. The Regional Planning Studies Department includes many well-known planning technicians. The Chief Engineer office provides general supervision of the design and construction of all the projects necessary for the unified improvement and control of the river system. It also serves as liaison with the United States Control Planning Department makes the surveys and the general layout plans of the comprehensive scheme of water control. The Design Department includes the Engineers and Architects who take this planning to "working drawing stages." The Construction Department turns the working drawings and specifications into the many structures: dams, powerhouses, locks, construction camps, villages, and similar constructions. Nearly all the work is done by direct labor.

In the division of the Management of Power one department plans electrical distribution and the other executes transmission systems and operates all the dams in accordance with instructions laid down by the Water Control Planning Department.

Water Control on the Land is carried out by the Office of the Chief Conservation Engineer, which supervises the work of three departments to assure development in co-operation with the federal and state agencies.⁴

⁴Julian Huxley, TVA--Adventure in Planning (London 1945), p. 11.

In its early years the TVA board faced a critical decision as to its method of work. It devised a plan to strengthen local governments and institutions and placed responsibility for local action upon the local people. This policy continues to the present. Effort was made to strengthen local institutions and agencies. They were given chances to make significant decisions.⁵

This policy of combining TVA and local efforts became the heart of the agency's agricultural rehabilitation work. Tennessee Valley agriculture was in a declining state in 1933. Farmers depended for their cash incomes mainly on corn, cotton, and tobacco—all row crops which left the ground bare and unprotected after the harvest. Topsoil was washed from the land and into the streams. Fertility declined and erosion scarred the fields. Each succeeding year brought greater impoverishment.⁶

The first step in revitalizing the soil came with the fertilization of pastures. This was unheard of at the time and an effective educational bridge had to be built to carry to individual farmers the scientific knowledge of this approach. The bridge turned out to be the extension services of the agriculture colleges. These county agents were men whom the farmers knew well and in whom they had confidence. By agreement with the colleges, they became the

⁵ Conservation—in the People's Hands, p. 195.

⁶ Conservation—in the People's Hands, p. 197.

channels through which an agriculture transformation reached the people on the land.⁷

The technique they used became known as test-demonstration farms. In rural community meetings the farmers would pick one or more of their number to try out the new ideas. TVA at first gave them some of the fertilizer they needed. County agents also gave them special guidance. In return, the test-demonstration farmers committed themselves to follow the recommendations of their agricultural college as to the crops they would grow and the fertilizer they would use. They agreed to plant check strips to show the changes which the use of fertilizer produced. They also agreed to keep production and financial records and to open their farms to their neighbors so they could see the results of the new farm practices.

This "seeing-is-believing" method proved successful but it was a slow process. Farmers were reluctant to change from long-established practices. Many followed, however, when the bolder test-demonstrators showed them it would work. Within fifteen years a million or more acres were converted from row crops to pastures.

As farmers altered their operations, soil fertility improved, incomes increased, and a transition took place. The first task was to raise the living standards of farm

⁷Conservation--in the People's Hands, p. 198.

people by increasing the productivity of the land. As their incomes increased, farmers had more money to invest in home improvements and labor-saving machinery. Fertilizer became one of the building blocks with which the farmer and his wife, helped by the county agent and home economist, planned the development of their whole farm operation. Thus, fertilizer and education affected diet and sanitation in the home as well as soil fertility.⁸

The following is part of a 1948 report submitted by a county agent for a county in Tennessee:

Twenty years ago corn yields averaged 27 bushels to the acre; now the average is 55. Pasture acreage in 1930 was 58,925; in 1935 it was 75,687; today the acreage is about the same but pasture quality is at least 300% better. Milk production rose from 2,675,396 gallons in 1930 to 5,116,082 gallons in 1945; this year's estimate exceeds 6,000,000 gallons. Alfalfa acreage was 781 acres in 1930; this year it will approximate 5,000 acres; and seed dealers say they are selling this year three times more seed for winter cover crops than last year.⁹

These statistics illustrate the tremendous transformation in farming methods and farm yield during the first years of the TVA program. The income of the families of the region also underwent rapid change. Between 1933-51 the per capita income of the people who lived in those counties that were part of the TVA region of the Southeast increased 477% as compared to an increase of 330% in the nation and 442% in the seven Southeastern states as a

⁸Conservation--in the People's Hands, p. 199.

⁹David Lillienthal, TVA--Democracy on the March (New York 1953) p. 28.

whole. The rapid economic growth in these counties is reflected in the growth of business and industry. Employees in private business and industry grew from 447,800 in 1933 to 919,400 in 1950, an increase of almost one-half million, or 103% for the valley, while the national increase was 88% and the growth in the whole Southeast was 97%. Meanwhile, income from business and industry increased by almost three billion, or 643%, as compared to 598% in the Southeast and 489% in the nation. In 1933, when their income was only \$836 million, valley people paid only about \$3 million in individual federal income taxes. In 1950, when their income had risen to \$5.5 billion, they paid almost \$300 million, so that the valley's share of the nation's tax load had doubled.¹⁰

Rehabilitation of the land resources also meant paying close attention to the forests; they had been overcut for years and left in neglect, and fire protection was most inadequate. This was a region in which fine hardwoods grew readily and more rapidly than in most other climates, but were not used to an advantage.¹¹

Eighty percent of the forest lands were owned by almost a quarter of a million people. Economic returns from these individual holdings were low, and the need to learn how to use them was great. Again TVA's approach was through education, with cooperation from state and local governments.

¹⁰ TVA--Democracy on the March, p. 36.

¹¹ Conservation--in the People's Hands, p. 200.

Fire control with emphasis on prevention, reforestation, and improved forest management became the main facet of the program. It took several years to reverset the trend in forest resource from steady decline to growth and productivity. By 1960, however, the forest products industry in the region had a product value of \$500 million and an annual payroll of \$124 million with about 35,000 people employed.

The flood control system proved effective in preventing damage from the intense valley-wide storms to which the region is subject. Through the entire region was not made fully disaster-proof, great improvements were made. The dams and reservoirs have regulated, with only minor damage, all floods in the twenty-five years following completion of Norris Dam. They are reducing the frequency and depth of flooding on unprotected lands along the lower Ohio and Mississippi rivers.¹²

Creation of the reservoirs also created a health problem. Along the shorelines were many shallow stretches of water providing good places for the malaria-carrying mosquito to breed. A threefold approach was made to the solution of this health problem. During dam construction, vegetation was removed; drainage ditches were built; and other measures were taken to destroy the habitat of the mosquito. Once the reservoirs were completed and filled,

¹²Conservation--in the People's Hands, p. 201.

water levels were fluctuated so as to destroy mosquito larvae. This practice proved the most effective single measure of malaria control. Over the years TVA has maintained continuous surveillance of malaria.

Power was regarded as a tool to be employed as widely and effectively as possible in the economic advancement of the region. To achieve wide distribution, it was to be sold at the lowest possible rate consistent with sound business policy. Yet, the law required that the power system was to be financially self-supporting and self-liquidating.

TVA assumed the role of the wholesaler in the power system, taking over the function of generation and transmission. The retail function was worked out over a period of several years. Many urban communities already had power service, some served by municipally owned plants and some by private power companies. Where private companies provided the service and owned the power facilities, cities were faced with the question of whether to create municipal retail distribution agencies, buy the plants and lines from the companies and purchase power from TVA, or continue to use power provided by private companies. This question usually was put directly to the voters in a referendum. Throughout the Valley and adjacent areas, most of these resulted in a decision favoring municipal distribution as part of the TVA system.¹³

¹³Conservation--in the People's Hands, p. 202.

In 1933 there was electricity on only one Mississippi farm out of a hundred, in Georgia one out of thirty-six, and in Tennessee and Alabama one out of twenty-five. TVA helped farmers organize electric cooperatives to string lines down the country roads connecting individual farms with TVA power.¹⁴

One of the original aims of TVA, and one much publicized in its earlier years, was to set up a "yardstick" by which to measure the relative efficiency of private and public organizations for the generation of electricity, and to assess the degree to which the private organizations had been carrying out their duty to the public of providing cheap and abundant power, as well as securing the interest of their shareholders.

In the period before the depression, many utility companies had been guilty of making sure of their profits by keeping rates high, without making special efforts to expand consumption. The real value of the TVA experiment is that it demonstrated the elasticity of everything connected with electricity supply. It showed that it is not cost which dictates rates, but vice versa; low rates bring high use, and this in turn low cost per unit.

Where the TVA has produced a real yardstick is in the field of distribution. Its experience has shown that any urban distributing system which can obtain power at something

¹⁴ TVA--Democracy on the March, p. 19.

like the TVA wholesale rate, and is willing to use the same sort of advertising which has increased consumption in the Valley, can fix a retail price below the usual range of private companies, and be sure of a reasonable return.¹⁵

The chain of man-made reservoirs, located in an area rich in natural foilage and partially mountainous, has proved to be a rich resource for recreation with personal as well as more general economic value. As dams were built and reservoirs were prepared, sites for parks, boat docks, and other facilities the public might use were located. TVA followed the policy of encouraging recreational development by state and local agencies and through private investment rather than through the use of federal funds. In the early years demonstration parks were built to show some of the possibilities for park development. In addition, TVA transferred thousands of acres of federal lands to states, counties, and cities at no cost except a promise to develop them for public recreation use.

Under this policy the TVA lake region has experienced a rapid growth in public use since World War II. The lakes were used by only about 7.5 million people in 1947 but by nearly 50 million people in 1962. The reservoirs rank second only to the northern Great Lakes area as a national fishing attraction. The value of the lake-shore installations and equipment is estimated at \$150 million. The states in the region have established 13 state parks. Cities and

¹⁵TVA--Adventure in Planning, p. 25.

counties operate 66 others. Smaller public access areas number into the hundreds as do privately operated resorts and boat docks. TVA itself operates no recreational facilities.¹⁶

It would be impossible to isolate the effect of TVA on the economic and social life of the Tennessee Valley in the last generation. Many factors have been at work and are all a part of the picture. It cannot be said that all of the economic problems of the area have been solved. Agriculture still carries more than its share of the employment in rural areas. Mechanization of coal mines has brought decreased employment even while the markets have grown. The farm-to-city migration in search of job opportunities is strong, and thousands are leaving the region to seek opportunities in other parts of the country.¹⁷

Nevertheless the region is undergoing a great transition with reasonable success. Industries are growing, agriculture is modernizing, and incomes are increasing with the rest of the nation. The future for the people living in the Tennessee River basin holds great promise.

¹⁶ Conservation--in the People's Hands, p. 204.

¹⁷ Conservation--in the People's Hands, p. 205.

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